

We claim:

1 1. A board mountable transformer comprising:
2 a support structure;
3 a primary and a secondary winding wound on the support structure;
4 termination points mounted in the support structure, wherein at least some of
5 the termination points provide electrical connection to the primary and secondary
6 windings;
7 an electromagnetic shield wrapped around the winding and electrically
8 connected to one of the termination points not connected to the primary or secondary
9 windings, wherein the electromagnetic shield is electrically connectable to a fixed
10 potential through a safety rated capacitor.

1 2. The board mountable transformer structure of Claim 1 wherein the
2 fixed potential is a secondary ground.

1 3. The board mountable transformer of Claim 1 wherein the
2 electromagnetic shield is electrically connected to the termination point by a
3 conductive strap soldered to the electromagnetic shield.

1 4. The board mountable transformer of Claim 1 further comprising a
2 magnetic core held by the support structure.

1 5. The board mountable transformer of Claim 1 wherein the safety rated
2 capacitor is connected between secondary ground of a printed circuit board and the
3 termination pin connected to the electromagnetic shield.

1 6. A power supply providing a regulated output voltage from an input
2 voltage, the power supply having improved EMI performance and comprising:
3 an input power stage receiving the input voltage;
4 an output power stage providing the output voltage; and
5 a transformer coupling and providing electrical isolation between the input
6 power stage and the output power stage, the transformer further comprising:
7 a bobbin having a termination block and a spool with an aperture
8 therethrough;
9 at least two windings wound around the spool;
10 termination points mounted in the termination block of the spool,
11 wherein a plurality of termination points is used providing electrical
12 connection to the windings;
13 a magnetic core inserted into the aperture in the spool; and
14 an electromagnetic shield surrounding a least a portion of the magnetic
15 core and electrically connected using a conductive strap to a shield termination
16 point not connected to the windings which is electrically connected to a fixed
17 potential through a safety rated capacitor.

1 7. The power supply of Claim 6 wherein the power supply is an ac-to-dc
2 power supply.

1 8. The power supply of Claim 6 wherein the power supply is a dc-to-dc
2 power supply.

1 9. The power supply of Claim 6 wherein the electromagnetic shield is
2 formed from copper foil.

1 10. The power supply of Claim 6 wherein the fixed potential is a ground
2 plane on the secondary side of the transformer.

1 ~~11~~ A method of shielding a magnetic structure from radiating
2 electromagnetic interference, the magnetic structure having a support structure, a
3 magnetic core mounted in the support structure, windings mounted on the support
4 structure, and termination points electrically connected to the windings and mounted
5 in the support structure, the method comprising:
6 at least partially enclosing the magnetic core with an electromagnetic shield;
7 connecting the electromagnetic shield to a shield pin mounted in the support
8 structure using a conductive strap; and
9 connecting the shield pin to a fixed voltage through a safety rated capacitor.

1 ~~12~~ The method of Claim ~~11~~ wherein the fixed voltage is a secondary
2 ground plane.

1 ~~13~~ The method of Claim ~~11~~ wherein the electromagnetic shield is formed
2 from copper foil.

1 ~~14~~ The method of Claim ~~11~~ wherein the magnetic structure is an isolation
2 transformer used in a power supply.

1 ~~15~~ The method of Claim ~~11~~ wherein the shield pin is separated from the
2 termination pins in order to maintain safety spacing and creepage requirements.